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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,264	09/30/2003	Peter John Biles	Biles 4-2-4-8-8/075903-24	4020
29391	7590	11/15/2005	EXAMINER CHAUDHRY, SAEED T	
BEUSSE BROWNLEE WOLTER MORA & MAIRE, P. A. 390 NORTH ORANGE AVENUE SUITE 2500 ORLANDO, FL 32801			ART UNIT 1746	PAPER NUMBER

DATE MAILED: 11/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/675,264	Applicant(s) BILES ET AL.	
	Examiner Saeed T. Chaudhry	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
 4a) Of the above claim(s) 1-4 and 8-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 5-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/20/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restriction

Applicant's election of Group II, claims 5-7 in Paper No. 9/14/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (c) he has abandoned the invention.
- (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.
- (f) he did not himself invent the subject matter sought to be patented.
- (g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

Claims 5 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Chow et al (6,872,322).

Chow et al (6,872,322) disclose a method for cleaning polymer residue from inside of a process chamber, wherein a substrate having a metal layer by (a) transferring the substrate into

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the chamber and electrostatically holding the substrate on an electrostatic chuck; (b) providing an energized first etchant gas; and (c) providing an energized second process gas in the chamber to further treat the surfaces in the chamber and to assist in de-chucking the substrate from the electrostatic chuck, the second process gas consists essentially of oxygen (see claims).

Suitable etchant gases for etching layers on the substrate 25, include for example, HCl_3 , BCl_3 , HBr , Br_2 , Cl_2 , CCl_2 , SiCl_4 , SF_6 , F , NF_3 , HF , CF_3 , CF_4 , CH_3F , CHF_3 , $\text{C}_2\text{H}_2\text{F}_2$, $\text{C}_2\text{H}_4\text{F}_6$, C_2F_6 , C_3F_8 , C_4F_8 , C_2HF_5 , C_4F_{10} , CF_2Cl_2 , CFCl_3 , O_2 , N_2 , He , and mixtures thereof. The etchant gas is selected to provide high etch rates, and highly selective etching of the particular layers that are being etched. When multiple layers are sequential etched, first, second, third, etc., etchant gas compositions are sequentially introduced into the chamber to etch each particular layer (see col. 8, lines 45-58).

It has been further discovered that an oxygen containing plasma can be used to remove the remaining silicon dioxide containing and fluorocarbon based polymer residue 310 remaining on the walls and surfaces of the chamber. The oxygen plasma cleaning step is performed after etching or otherwise processing the last residue creating layer on the substrate, such as the polysilicon over-etching step. In this step an oxygen-containing gas, such as an oxygen species generating gas, oxygen or ozone is introduced into the chamber. Additionally, the oxygen plasma also serves to remove residual charge in the chamber to dechuck the substrate when the substrate is electrostatically held on an electrode in the chamber by providing an opposite charge, for example an electronegative charge (see col. 15, lines 7-30).

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Chow et al disclose all the limitations as claimed in the method. Therefore, Chow et al anticipate the claimed method.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chow et al (6,872,322) in view of Reichelderfer et al (4,380,488) or Harafuji (5,635,021).

Chow et al were discussed supra. However, the reference fails to disclose etching aluminum.

Reichelderfer et al (4,380,488) disclose a method for etching aluminum is a chamber by an etching gas mixture selected from the group consisting of BCl_3 , Cl_2 , CCl_4 , and combination thereof (see col. 1, lines 43-52 and claim 1).

Harafuji (5,635,021) disclose that it is preferable to use gas which chlorine is used as the base, such as BCl_3 and chlorine for etching aluminum (see col. 50-59).

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It would have been obvious at the time applicant invented the claimed process to utilize the method's of Reichelderfer et al or Harafuji into the process of Chow et al for the purpose of rapid etching the aluminum layer without photoresist breakdown. It is well known in the art to etch the aluminum layer for producing electronic components with the processes of Reichelderfer et al or Harafuji. Therefore, one of ordinary skill in the art would use these processes in process of Chow et al to increase the out put of the production by decreasing the down time of the chamber with simultaneously etching the substrate and cleaning the chamber.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is (571) 272-1298. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 4:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Barr, can be reached on (571)-272-1414. The fax phone number for non-final is (703)-872-9306.

When filing a FAX in Gp 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Saeed T. Chaudhry
Patent Examiner

MICHAEL BARR
SUPERVISORY PATENT EXAMINER

